

(i) Remain effective at all temperatures up to 649 °C (1200 °F); and

(ii) Be jacketed with a material having a melting point of 649 °C (1200 °F) or greater.

(6) The flow capacity rating of any pressure relief device must be certified by the manufacturer to be in accordance with the applicable provisions of the ASME Code with the following exceptions:

(i) The ASME Code stamp is not required; and

(ii) The flow capacity certification test for spring loaded pressure relief valves may be conducted at a pressure not to exceed 120% of the set pressure provided the stamped flow capacity rating is not greater than 83% of the average capacity of the valves tested.

(e) *Markings on pressure and vacuum relief devices.* The following information shall be plainly displayed on each pressure relief device:

(1) The pressure or, when appropriate, the temperature at which the device is set to function;

(2) Except for vacuum relief devices, the rated flow capacity of air discharged per minute at 15 °C (59 °F) and atmospheric pressure, at:

(i) The set pressure for rupture discs;

(ii) No greater than 20% above the start-to-discharge pressure for spring-loaded relief devices; or

(iii) The fusing temperature for fusible elements.

(3) The manufacturer's name and catalog number; and

(4) The allowable tolerances at the start-to-discharge pressure and the allowable tolerances at the discharge temperature.

[Amdt. 178-65, 46 FR 9897, Jan. 29, 1981; 46 FR 24184, Apr. 30, 1981, as amended by Amdt. 178-97, 55 FR 52716, Dec. 21, 1990; Amdt. 178-99, 58 FR 51534, Oct. 1, 1993; Amdt. 178-104, 59 FR 49135, Sept. 26, 1994; 66 FR 45386, 45389, Aug. 28, 2001; 67 FR 61016, Sept. 27, 2002]

§ 178.270-12 Valves, nozzles, piping, and gauging devices.

(a) All tank nozzles, except those provided for filling and discharge connections below the normal liquid level of the tank, relief devices, thermometer wells, and inspection openings, must be fitted with manually operated stop valves located as near the shell as prac-

ticable either internal or external to the shell. Each filling and discharge connection located below the normal liquid level of the tank must be equipped with an internal discharge valve. A tank nozzle installed in the vapor space to provide a filling or cleaning opening, which is closed by a blank flange or other suitable means, need not be provided with a manually operated stop valve. A tank nozzle installed for a thermometer well or inspection opening need not be provided with a manually operated stop valve.

(b) Each valve must be designed and constructed to a rated pressure not less than the MAWP of the tank. Each stop valve with a screwed spindle must be closed by a clockwise motion of the handwheel. All valves must be constructed to prevent unintentional opening.

(c) Each internal discharge valve shall be self-closing, located inside the tank, within the welded flange or within its companion flange.

(d) A shear section must be located outboard of each internal discharge valve seat and within 10.2 cm (4 inches) of the vessel. The shear section must break under strain without affecting the product retention capabilities of the tank and any attachments.

(e) All piping must be of suitable material. Welded joints must be used wherever practicable. The bursting strength of all piping and pipe fittings must be at least 4 times the MAWP of the tank. Piping must be supported in such a manner as to prevent damage due to thermal stresses, jarring or vibration.

(f) All nozzles and tank shell penetrations for nozzles shall be designed and constructed in accordance with the ASME Code.

(g) Glass liquid level gauges, or gauges of other easily destructible material, which are in direct communication with the contents of the tank are prohibited.

[Amdt. 178-65, 46 FR 9898, Jan. 29, 1981; 46 FR 24184, Apr. 30, 1981, as amended by Amdt. 178-117, 61 FR 50628, Sept. 26, 1996; 66 FR 45386, Aug. 28, 2001]

§ 178.270-13 Testing.

(a) *Hydrostatic test.* Each portable tank and all piping, valves, and other